



Phenomenological research in health professions education: Methods, data collection and analysis

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Abstract

Whilst the majority of research in health professions education is quantitative in nature, this is often not sufficient in order to explore important concepts and questions. In its broadest sense, phenomenology attempts to explore people's own lived experience and how they interpret that experience. As such, phenomenology is a method of reflective practice that can be used to formally and qualitatively explore individuals' perspectives on the world around them. Typically, when making qualitative observations, participants would be selected who share a mutual life experience such as communicating through an interpreter or weighing the benefits and risks of treatment options? By using a phenomenological approach the researcher is able to explore the experience or condition from the individual's point of view. Frameworks and careful analysis of emerging themes help researchers to rationalise their findings. This paper offers practical examples of phenomenological research in the context of dental practice, how and what data to transcribe, and how to use quotations to support your research.

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Introduction

Phenomenology is an approach, which sits within the qualitative field of research and explores the lived experiences of a specific phenomenon as well as the results or outcomes of those experiences [1]. Rather than analysing numerical data, it attempts to understand people's perceptions, perspectives and understandings of a particular situation or phenomenon through an analysis of words, themes and contexts. It therefore forms part of a qualitative research approach [2]. The importance of qualitative research within medicine is being increasingly recognised [3], with the argument that the patient experience within an every-day context is often a more powerful motivator for changing clinical practice than trying to interpret numerical methods [4]. Data from phenomenological research

is primarily collected through interviews; story telling or observations by the participants and individuals who have had that experience. Whichever method of data collection is used, these will all need to be transcribed before any data analysis can be carried out. Data analysis may be undertaken using a number of approaches, with the aim of identifying salient information and categorising this into a set of themes once all texts have been analysed [5]. These themes will be common between all the participants of the research and will form the basis of the findings. This paper offers practical examples of phenomenological research, how and what data to transcribe, and how to use quotations to support your research.



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Why choose phenomenology as a method?

Within the dental literature there is very little reported on the use of phenomenology in dental research compared to other health care sciences such as pharmacy, medicine and nursing professions. The most commonly used qualitative research methods in the health sciences aside from phenomenology are grounded theory involving the construction of theory through the analysis of data and ethnography where the researcher studies the structure and function of a group of people [6]. Although now used with increasing frequency the use of qualitative research design in dentistry is relatively uncommon when compared to quantitative research [7-10].

Randomised Control Trials (RCTs) and questionnaire-based surveys are among the most common qualitative research approaches used today [10]. A search of publications indexed in Pub Med yielded only five related to dentistry that used a phenomenological research approach. In contrast, a search for quantitative research resulted in over 3000 citations within dentistry. It is also acknowledged that this approach has been underutilized in the philosophy of medicine as well as in medical training and practice [11]. Yet qualitative methods, allow a unique insight into an individual's experiences, perceptions and feelings which can provide rich information to improve our knowledge and understanding of a variety of issues that are of interest and importance in both dentistry, and health care such as living with dental phobias, being an oral cancer survivor, being edentulous, curriculum development, communication, leadership, and interdisciplinary practice to name a few. Within dentistry for example, Seaman C (2008) [12] used an empirical phenomenological study to explore the lived leadership challenges, strategies and behaviours of the general dentist leading dental teams. Fifty six general dentists practicing in South Central Idaho represented the population from which twelve were identified as leaders. Four major structural themes which included mentoring, empowerment, teambuilding and caring and ten further textural themes emerged from the data. Study participants shared experiences confirming the effect of the phenomenon of caring underpinning leadership behaviour's in their organizations that promote motivation and learning. The study revealed human caring skills guided transformational leadership strategies in general dentistry.

Balasurbramanian et al [13] also used a phenomenological study to examine the assessment and examination process through the experiences and perceptions of 49 overseas qualified dentists from 22 nationalities seeking to practice in Australia. Two themes emerged from the data how 'tough and stressful' the examination was and the 'need for support' for those considering taking the examination. The research highlighted the need for support structures for overseas-qualified dentists by recognised bodies to prevent potential exploitation.

Within other areas of health care such as pharmacy, medicine and nursing, professions phenomenology has been used more extensively to examine, for example, collaboration and team-based care [14], pharmacist-patient relationships [15], clinical medicine [11], and medical training and practice [16]. For example, Makowsky et al [14] used a phenomenological approach to examine the working relationships between pharmacist, physicians and nurse practitioners in the inpatient medical setting. Four major themes which included team processes, impact on patient care, organizational and practice structure and professional development emerged from the data. The study revealed the integration of pharmacists into the team had fa-

cilitated positive patient outcomes by improving drug-therapy decision-making, and the continuity of care and patient safety. In a recent study Doubell et al [16] used interpretative phenomenology to describe the experiences of senior students using mobile devices in a clinical setting while learning and interacting with clinical teachers, patients and each other, and to identify challenges that facilitated or impeded the use of such devices in the hospital. Three main themes emerged from the data analysis: learning; professional identity and transitioning from student to doctor. The findings showed that using mobile devices in the clinical area as a learning tool was not a formalised process. Rather, it was opportunistic learning at the bedside and on occasion a source of distraction from clinical teaching. Students needed to negotiate relationships between themselves, the clinical teacher and patients in order to ensure that they maintained an acceptable professional image. Participants experienced and negotiated the change from student to doctor making them mindful of using their devices at the bedside. For that reason, this type of methodology is ideally suited to research where quantitative methods lack the necessary breadth and depth. Phenomenology studies have been influential in several social sciences as well as applied fields such as nursing and the health sciences [17]. It has also had a major influence on the general development of qualitative methodology, and provides the philosophical basis for interpretative research strategies [18]. Interpretive research seeks to understand the lived experiences of people and to establish the everyday meanings of phenomena in their lives, thoughts, and ideas [19].

There are two main approaches to phenomenological research descriptive phenomenology and interpretative phenomenology, therefore; one must decide which of these two approaches are to be used. Descriptive phenomenology is attributed to Edward Husserl [20] who used the concept of 'bracketing' to maintain objectivity, this involves the researcher approaching the study with no preconceived assumptions regarding the experience under investigation i.e. what they think they know about the experience and making one's biases (whether experiential or disciplinary) explicit before engaging in the research [21]. Subsequently, Heidegger [22] modified Husserl's theories and developed the interpretative approach. In this approach researchers believe it is impossible to rid the mind of any preconceptions regarding the experience under investigation and believe instead that we use our own experiences to guide our research. Therefore, we have no detached standpoint. Consequently, for dental and health care practitioners conducting research using descriptive phenomenology one would expect some discussion around how they 'bracketed' their own preconceptions to ensure a neutral approach such as perhaps not undertaking a literature review before carrying out the research [23]. Alternatively, those conducting interpretative phenomenology will need to show how their own experiences have shaped the choice of research topic, the questions and interpretation [23]. Therefore, it is important to read around the two different types of phenomenology to make sure the right approach is used. Once you have decided on the approach most suited to your research the next question is how you will collect your data.

As previously discussed, there are several ways of collecting data for phenomenological research including interviews; story telling or observations; following this the researcher will read all the transcripts from the interviews, stories, etc., with a view to identifying themes that capture the meaning of the experience based on the words and expressions used. The resulting data

are then clustered into emerging themes, which forms the basis of the findings. These themes will be common between all the participants of the research.

Therefore, it is important to firstly make sure phenomenology is the right methodology to use, for example, will it shed light on, or explain the lived experiences of a an individual or a group of individuals and will it have meaning or will it simply describe the experience.

Reflective diaries

One method of collecting data in phenomenological research is the use of diary writing. The very nature of diary writing itself requires the writer to think back on events that have taken place and provides an opportunity for expression of personal thoughts. Keeping a diary is a common practice in qualitative research; however, there is relatively little literature on the use of diaries in the research process, and limited guidance for novice researchers [24]. Having decided to use diaries as a means of collecting data researchers need to consider some practicalities, what information they require from the research participants, whether the diary should follow a prescribed format i.e. questions designed to assist the research participants to revisit and reflect on for example, what they had learned, and to identify areas where they encountered problems and how they planned to resolve them. Researchers should also make clear how much or how little they expect the research participants to write, this should be stipulated at the beginning of the diary for example, participants are 'free to write as much or as little as they want under each heading'. Consideration should also be given to when the diaries should be completed i.e. during the experience or at the end and also whether the diary should have a self-reflection section where participants can focus on their thoughts about the activity/experience. For example, in an interdisciplinary exercise within a trainee dental team [25], the aims of the study were to explore the professional experiences and development of both trainee dental technicians and undergraduate dental students during a prolonged shared learning exercise. By using a phenomenological approach which seeks essentially to describe rather than explain an experience the researcher can start to make some generalizations of what something is like as an experience from the 'insider's' perspective.

Here the use of diaries provided an opportunity for the participants not only to think back on the learning activities but to explicitly and purposely identify what they have learned, and more importantly, to relate what they have learned to their practice, allowing them to evaluate their practice, and formulate action plans for improvement. The diary also allowed the participants to search for and express their learning in a personal way, a learning that makes personal meaning and is useful in the student's own context. As each participant in the study completed an entry in their diaries their experiences are reported using their own words, thus creating a 'story' that is rich and multidimensional.

The focus group

Focus groups are now used increasingly in dental research to explore a range of themes [26]. One big advantage of the focus group is the bringing together of participants for group interviews as it allows the facilitator to elicit often deeper and richer data from a number of participants in one session, thus avoiding time consuming individual interviews [27]. For example, in an interdisciplinary exercise within a trainee dental team [25]

the idea was to learn from the experiences of both the trainee dental technicians and undergraduate dental students. The focus group was chosen because it was thought to be a supportive environment that would encourage discussion and the sharing of the students' experiences, providing a rich source of data in a way which would not be feasible using other methods, for example observation, one-to-one interviewing, or questionnaire surveys [28]. Here I would be able to frame my research questions to ask about their lived experiences, as contrasted with abstract interpretations of experience or opinions about them [28]. The focus group seemed to have a strong advantage here; the interaction of the group can provide an explicit basis for exploring an issue in a way which allows the researcher to find out why an issue is salient, as well as what is salient about it [29].

As a result the gap between what people say and what they do can better be understood [30]. In total six focus group meetings were held over a two year period with two different cohorts of students. Separate focus groups between the undergraduate dental students and the trainee dental technicians were considered likely to be most productive. Greater homogeneity would encourage more free flowing discussions and would facilitate comparison between the two groups [31,32]. It was felt that having mixed groups might inhibit the students from discussing their experiences openly. I approached the focus groups with a view to generating questions that naturally emerged and that followed the lead of the participants' natural attention to topics within the conversation, although there were some questions to which I particularly wanted answers, for example, What benefits if any did you gain from the shared learning exercise? Was there anything that wasn't of benefit from the exercise? Were you conscious of any barriers to learning during the exercise? Did you feel the patient gained benefit from the exercise? How could the exercise be improved? In my research, I tried to facilitate the release of the students' stories, from these accounts of the experience I probed the subjects' dialogue for relevant depth in the hope of facilitating the telling of stories that painted detailed stories of their experiences. Initially my inexperience as a facilitator showed as I felt I could have encouraged the more reserved and quiet students within the group to participate more in the discussion. However, this changed over the course of the first two focus groups as I became more experienced and confident in facilitating each group. Researcher's stress the important role of the group facilitator should not be underestimated [33,34]. A skilful moderator can create an environment in which participants can feel relaxed and encouraged to engage and exchange views and ideas about an issue [33,34]. Talk can only become research data if it is captured, recorded and transcribed into a format that can be analysed. A combination of note taking and audio tape recording were used for the purposes of data collection. I also enlisted the help of a colleague who acted as an observer and took notes during the interviews. In the transcribing stage, I transformed data from oral speech to written text.

This procedure enabled me to prepare the interview material from the recorded tapes for analysis. The transformation from oral to written mode was done carefully to reflect the interviewee's words verbatim the desire to correct 'errors' was avoided in the endeavour to preserve the sequence of whole, meaningful words [33]. This involved judgement and was done carefully to reflect the interviewee's words verbatim the desire to correct 'errors' was avoided in the endeavour to preserve the sequence of whole, meaningful words [33]. I enlisted the help of a transcriber who typed up interviews in Microsoft Word verbatim.

Data analysis

For the purposes of my own research, the primary source of data for each participant was the reflective diaries and the transcripts from the focus group data. This involved me as the researcher reading all the transcripts from both the reflective diaries and focus groups and making notes of words, or short phrases that sum up what is being said in the text. Using thematic content analysis it was then possible to identify themes and categories that emerge from the data [35]. In the second stage, all the words and phrases are then worked through to look for duplications thus reducing the number of categories. Once this second list has been compiled, overlapping or similar categories are refined and reduced in number by grouping them together [36]. This reduced list is then used to build a story that connects each of the categories defined through the initial coding. Finally, to validate the data, participant feedback was used, here a list of central concepts and excerpts of the findings were returned to an invited group of participants in order for them to validate, or refute, my interpretation of the data [37]. It is often difficult as a researcher to truly remain outside the subject matter due to what is termed 'insider knowledge', therefore, self-awareness is essential to understand how this knowledge can be of benefit to interpretation and prevent distortion of data. [38]. This process known as 'reflexivity' is accepted as a method where qualitative researchers can validate their research practices [39-41].

It is perceived as an integral process whereby the researcher continuously reflects on how their own actions, values and perceptions impact upon the research setting and can affect data collection and analysis [42]. Therefore, reflexivity is all about ensuring the quality and transparency of the research under investigation [38]. Tables 1 and 2 are an example of the reflective diary and focus group questions the corresponding major domain that each addresses and the themes arising out of the data generated from a qualitative study exploring the interactions in a trainee dental team [25]. The key overarching elements arising from both the domains and themes from the reflective diaries and focus groups are subsumed under the headings; Apprehension and awkwardness; The growth of the dental team; Worries about patient care. These three key headings are linked to their respective domain/themes in the figures. Although the method of analysis described in this paper involves managing the data by hand, there are a number of computer software packages available that can be used to manage and help in the analysis of qualitative data. However, it must be stressed that these programs do not analyse the data they simply manage the data and make data easier to handle. And as these are merely instruments it must be stressed they are only as good or bad as the researcher using them [42].

Table 1: An example of reflective diary questions, the domains and themes arising from the data and the headings used to combine the elements from both the domains and themes.

Question	Domain	Themes	Headings
<i>What you did</i>	<ul style="list-style-type: none"> Decision making and professional judgement 	<ul style="list-style-type: none"> Learning Communication 	The growth of the dental team
<i>Outcome</i>	<ul style="list-style-type: none"> Collaboration 	<ul style="list-style-type: none"> Cooperation Team work 	The growth of the dental team
<i>Problems encountered / handled</i>	<ul style="list-style-type: none"> Patient care 	<ul style="list-style-type: none"> Reflection Problem solving 	Worries about patient care
<i>What would I do again / what I would not do again / what was a mistake</i>	<ul style="list-style-type: none"> Awareness 	<ul style="list-style-type: none"> Familiarity Proactive 	The growth of the dental team
<i>Follow up / Action plan</i>	<ul style="list-style-type: none"> Treatment plan 	<ul style="list-style-type: none"> Involvement Interaction 	The growth of the dental team
<i>Additional comments; possible comments about How I felt in the clinic / laboratory How the patient felt</i>	<ul style="list-style-type: none"> Professional identity, role definition 	<ul style="list-style-type: none"> Relationship Confidence 	Apprehension and Awkwardness

Table 2: An example of focus group questions, the domains and themes arising from the data and the headings used to combine the elements from both the domains and themes.

Question	Domain	Themes	Headings
<i>What benefits did you gain from the exercise?</i>	<ul style="list-style-type: none"> Understanding one another's role 	<ul style="list-style-type: none"> Collaboration Team work 	The growth of the dental team
<i>Was there anything that wasn't of benefit from the exercise?</i>	<ul style="list-style-type: none"> Apprehension 	<ul style="list-style-type: none"> Concern Anxiety 	Apprehension and Awkwardness
<i>Were you conscious of any barriers to learning during the exercise?</i>	<ul style="list-style-type: none"> Awkwardness 	<ul style="list-style-type: none"> Attitude Uneasiness 	Apprehension and Awkwardness
<i>Do you feel the patient benefited more?</i>	<ul style="list-style-type: none"> Awareness of responsibility to patients 	<ul style="list-style-type: none"> Communication Understanding 	Worries about patient care
<i>How could the exercise be improved?</i>	<ul style="list-style-type: none"> Preparation 	<ul style="list-style-type: none"> Information Equality 	The growth of the dental team

Quotations

As previously mentioned using a phenomenological approach involves categorising the participant's experiences into themes using their own words. In phenomenology these are normally presented in quotes to represent the participant's experiences. However, it is possible some researchers may have an underlying agenda and may be selective with regard to what they choose to quote and this can alter the participant's meaning [23]. Therefore, it is important for the researcher to present quotes true to the participants' words and meanings regarding their experiences. The words of individual participants can be very powerful and emotive. Therefore, one good quote can replace a number of lines of explanatory text without further clarification.

For example, in my research quotes from students reflected their initial feelings of apprehension and awkwardness working together; 'initially I did feel left out; however, this all changed as the patients treatment progressed and I got to know the undergraduates better'. (Dental Technician Reflective Diary DT). 'I would have felt quite bad criticising the technician's work after he had put in so much effort'; (4th Year Undergraduate Dental Student Focus Group DS4). In phenomenology participant quotes should be presented with a participant identifier, for example, a number or letter after the quote, (see above (DT) for Dental Technician and (DS4) for dental student year 4) in this way a graphic verbal description can be built up of the different participants and their experiences [23]. Again participant feedback can be used to demonstrate the validity and reliability of your quotes by giving the participants a chance to look at a summary of your quotations [36].

Conclusion

The purpose of this paper was to provide an introductory description and analysis of the phenomenological research process, while also contextualizing its role in dentistry and health care using examples of relevant studies. It is important for dental and health care practitioners considering undertaking phenomenological research to read around the subject to gain a better understanding of the different approaches in phenomenology to help guide them through each step of the process. Phenomenological research certainly has its role within dentistry. It should not be considered less valuable to its more traditional counterpart i.e. quantitative methods. Phenomenological research explores people's experiences and perspectives in great depth. The richness of this approach addresses 'what is it like to experience such and such'. Therefore, phenomenology can be used as a vehicle to illuminate and clarify central and important issues in both dentistry and health care. This paper demonstrates the usefulness of phenomenology to clinical dentistry and health care practice.

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